Reliability Applications in Renewal Risk Theory

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Abstract

Different kinds of renewal equations repeatedly arise in connection with renewal risk models and variations. When bounds of the solution are concerned, the implementation of diverse reliability classes proves to be appropriate in two ways: First, to obtain bounds directly through the renewal equation itself and second, to approach bounding by imposing some additional conditions on the functions involved in the renewal equation in question. An example applicable in a wide variety of actuarial contexts is provided by the zero-modified discrete compound geometric tail. More specifically, we demonstrate the two bounding approaches considering on one hand the tail distribution of the deficit at ruin and on the other hand, the stop-loss premium.